

## **Pertussis: A Vaccine-Preventable Disease, But Case Rates in Washington State Are High**

Pertussis, or whooping cough, is the most commonly reported vaccine-preventable condition in Washington State. Although pertussis is usually an extended coughing illness that eventually resolves, infection can cause severe illness and even death. Recently, providers infected by patients have caused outbreaks associated with health care facilities in Washington.

### **Disease Course and Symptoms**

Pertussis is a bacterial infection that is highly contagious through respiratory secretions such as from coughing or sneezing. The illness starts seven to 20 days after exposure to an infected person. Initial symptoms are similar to a cold-like upper respiratory infection and may include a low-grade fever, sneezing, runny nose, and mild cough. During this period the person is highly contagious. The cough usually worsens and becomes paroxysmal. Coughing spells may be followed by vomiting, a high-pitched inspiratory whoop, or even periods of apnea. Infants may have apnea without any distinct cough or other typical symptoms. Teenagers and adults with pertussis may have only symptoms of a cold such as runny nose and mild cough. Coughing usually persists for several weeks to several months.

Prompt treatment with appropriate antibiotics at the onset of pertussis symptoms can reduce the severity and duration of the illness and prevent transmission. Once coughing is established, antibiotics will not shorten the disease course.

### **Severity in Infants**

Older children and adults who have a mild, persistent cough or other mild symptoms are often the source of exposure for infants. Children too young to be fully immunized, particularly those under a year of age, are most likely to have severe illness and serious complications. Severe complications of pertussis may include pneumonia, seizures, hypoxia, apnea, encephalopathy, and malnutrition. Young children can die from pertussis, particularly unvaccinated children or those too young to be vaccinated who are infected by their older brothers and sisters, parents, or other care givers. Vaccination is the best way to protect infants from catching pertussis from adults or older children who may have the disease and not know it.

### **High Pertussis Rates in Washington**

Pertussis is a notifiable condition and health care providers, health care facilities, and laboratories should report cases to local health jurisdictions. According to disease surveillance data, pertussis rates tend to be higher in Washington than elsewhere in the country; in 2002 the national rate was 3.5 cases per 100,000 compared to 9.5 per 100,000 in Washington.

Washington had high levels of pertussis activity during 2003, with 844 pertussis cases, 17% in children under a year of age. This age group had the highest rate, 142 cases per 100,000 compared to 14 per 100,000 overall, a tenfold difference. High levels of activity continued during the first half of 2004.

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*epi*TRENDS  
P.O. Box 47812  
Olympia, WA 98504-7812

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*Continued page 2*

**For More Information:**

For more information on pertussis and the DTaP vaccine, visit the DOH website at: [www.doh.wa.gov/cfh/Immunize](http://www.doh.wa.gov/cfh/Immunize)

Surveillance information is at: [www.doh.wa.gov/notify/list.htm](http://www.doh.wa.gov/notify/list.htm)

For more information on CHILD Profile, visit: [www.childprofile.org](http://www.childprofile.org)

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Pertussis rates are also somewhat higher among adolescents than among children 5 to 10 years of age. Of the 147 cases in those under a year of age in 2003, 52% were hospitalized, accounting for 82% of total pediatric hospitalizations for the disease (Figure 1). No deaths occurred in 2003, but pertussis resulted in one infant death per year in 1996, 1998, and 2000.

Before the availability of vaccine, pertussis affected most children. Based on historical surveillance data, a peak occurred in 1934 with 4955 cases and 162 pertussis-associated deaths reported in Washington. The population that year was 1.6 million, giving a rate of 310 cases per 100,000, more than 20 times higher than current pertussis rates.

**Immunization**

The combination vaccine, DTaP, which includes diphtheria, tetanus, and pertussis, is safe and effective. In use since 1991, DTaP is acellular and has fewer side effects than the whole-cell DTP vaccines previously used. Although vaccination may produce mild reactions, such as a sore arm or fatigue, moderate reactions are uncommon; severe reactions, such as a major allergic reaction, are rare.

Complete immunization requires five doses of vaccine by 6 years of age. Even when all doses of vaccine are given as scheduled, immunity begins to fade and most children are again susceptible to pertussis by their teenage years.

Parents and health care providers can best protect children against pertussis by ensuring that children's immunizations are current for their age. DTaP is given in a five-shot series at 2, 4, and 6 months, at 15 to 18 months, and between 4 and 7 years of age. No vaccine is licensed for anyone over age 7, although the Food and Drug Administration is considering licensing a pertussis booster vaccine for adolescents and some adults.

Unfortunately, Washington State has a lower-than-average rate of immunization against pertussis. In 2002, only 77% of children 19-35 months of age had received the recommended four doses of the DTaP vaccine. Health care providers can use the CHILD Profile Immunization Registry to keep track of the immunizations a child has received and print out a current immunization record for parents.

**Vaccine Promotion Campaign**

Later this year, the Department of Health Immunization Program will launch a DTaP education and vaccine promotion campaign. The commitment of parents, health care providers, and public health officials to increase DTaP immunization rates will decrease the number of children who suffer from pertussis in our state.

**FIGURE 1: Pertussis cases in Washington by age in years, 2003**